



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,795	10/27/2005	Bernhard Nellessen	745691-35	1968
22204	7590	06/15/2006	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			CORDRAY, DENNIS R	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/521,795

Applicant(s)

NELLESSEN ET AL.

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/20/2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: page 4, lines 12-13 recite "q and s are independently 0 or an integer such that $1 \leq q+s \leq 400$." Defining q+s to be greater than or equal to both 1 and 400 is redundant and appears to be a typographical error.

Appropriate correction is required.

Claim Objections

Claims 1 and 19 objected to because of the following informalities: the claims recite "q and s are independently selected from the group consisting of 0 and an integer such that $1 \leq q+s \leq 400$." Defining q+s to be greater than or equal to both 1 and 400 is redundant and appears to be a typographical error. It will be assumed for the purposes of this examination that $1 \leq q+s \leq 400$. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the structure $[R^1_a Z_b SiO_{(4-a-b)/2}]_n$, which appears to mean that every Si is associated with a group Z_b . However, as defined in the same claim, subscripts a and b can be independently selected from the group of 0, 1, 2 or 3. The claim also

Art Unit: 1731

recites that there must be at least one group Z, thus b cannot be zero, or there would be no Z groups.

Claims 2 and 11 recite a group $-R^2-(OC_pH_{2p})_q(OC_rH_{2r})_s-R^3$ without defining all of the substituents and parameters R^2 , R^3 , p, q, r or s, thus is indefinite as to the scope of the claims.

Claims 12 and 13 recite that some "silicon atoms in the siloxane molecule are substituted by a group Z," without defining the group Z, thus are indefinite as to the scope of the claims. For instance, is "a group Z" the same group Z as recited in the parent claim or some other group Z?

The remaining claims are dependent from the rejected claims, thus inherit the indefiniteness thereof.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15-16, 18, 22-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollett et al (4919754) in view of Inada et al (6136766).

Mollett et al discloses a method for deinking recycled pulp comprising pulping the waste paper in an aqueous suspension to which a deinking additive has been added and removing the detached ink by flotation (col 2, lines 13-24). The additive preferably comprises a resin precursor mixture of a dihydroxy poly(dialkyl)siloxane and a

Art Unit: 1731

poly(alkylhydrosiloxane) (col 3, lines 3-8). The alkyl groups are preferably 1-4 carbons. The relatively hydrophobic resin precursor is dispersed in water (thus forming an aqueous emulsion) using a water-soluble surfactant or dispersant, which can be a polyalkoxylated organopolysiloxane (col 3, lines 29-36, col 4, line 38). In an example, polydimethylsiloxanes are used as the resin precursor and polyethyleneoxy-/polypropyleneoxy-functional polydimethylsiloxane as the dispersant (col 6, lines 15-22). The dispersant is present in an amount from 0.1 to 20% by weight of the resin precursor (col 3, lines 47-49). The resin precursor is added in an amount from 0.1 to 10% by weight of the pulp solids (col 4, lines 43-47). Thus the polyalkoxylated organopolysiloxane is added in an amount from 0.0001 to 2% by weight of the pulp solids, the range encompassing the claimed addition range. The resin precursor can be suspended in the pulping liquor (in the pulping stage) or added shortly before pulping (before the pulping stage) (col 4, lines 55-58).

Mollett et al does not disclose the structure of the polyalkoxylated organopolysiloxane.

Inada et al discloses a cleaning composition comprising an aqueous solution of a polydiorganosiloxane (Abstract) and a dispersant, which is a polyoxyalkylene-substituted polyorganosiloxane (col 3, line 66 to col 4, line 28). An example of a polyoxyalkylene substituent is $-R^3-(OR^4)_n-OR^5$, where R^3 can be a C_1 - C_8 alkylene group, R^4 can be a C_2 - C_4 alkylene group, R^5 can be H or an organic group and n is a positive integer (col 4, lines 43-56). An example is given wherein the substituent contains both polyoxyethylene and polyoxypropylene blocks (col 5, lines 13-29). The

Art Unit: 1731

number of polyoxyalkylene-substituted groups on the polyorganosiloxane is 5 mole percent or more to optimize system stability, which overlaps the claimed substitution range (col 5, lines 8-12). Inada et al discloses that the molecular weight of the siloxane is not particularly limited or that of the polyoxyalkylene substituents group although the preferred molecular weight of the polyoxyalkylene is from 100 to 5000 (col 4, line 66 to col 5, line 6). Using a molecular weight of 44 for the monomer in polyoxyethylene and 58 for the monomer in polyoxypropylene, the number of monomers in the substituents chain can range from about 2 to about 114, which significantly overlaps the claimed range for $q + s$.

The art of Mollett et al, Inada et al and the instant invention are analogous as pertaining to stabilized aqueous emulsions of polydiorganosiloxane and a polyoxyalkylene-substituted polyorganosiloxane. It would have been obvious to one of ordinary skill in the art to use the claimed polyoxyalkylene-substituted polyorganosiloxane as a dispersant in the deinking emulsion of Mollett et al in view of Inada et al to form a stable aqueous dispersion. Since no particular advantage was disclosed for the claimed values for p , q , r and s , it would have been obvious to use them as functionally equivalent options. Similarly, it would have been obvious to use a linear or branched polyoxyalkylene-substituted polyorganosiloxane.

Claims 14, 17, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollett et al in view of Inada et al and further in view of Richmann et al (5248388).

Mollett et al and Inada et al do not disclose the HLB of the surfactant or that the process can operate at neutral pH.

Richmann et al discloses the use of surfactants having an HLB from 0.5 to 10 for deinking of electrostatic printed wastepaper (Abstract). The surfactants include block copolymers of ethylene oxide and propylene oxide, alcohol ethoxylates and dimethylpolysiloxane ethoxylates (col 2, lines 38-54, col 3, lines 10-28; col 4, lines 42-46). Use of the disclosed surfactants allows the process to operate at ambient pH, thus alleviating the need for caustic or acid tanks in the mill environment (col 2, lines 38-43). The amount of surfactant added is from 5-20 lb/ton of fiber (0.25 to 1% by weight) (Claim 13). The process functions at pH levels of from 5-11 to provide efficient removal of ink particles from the pulp slurry (col 1, lines 39-50).

The art of Mollett et al, Inada et al, Richmann et al and the instant invention are analogous as pertaining to stabilized aqueous emulsions containing polyoxyalkylene-substituted polyorganosiloxane. It would have been obvious to one of ordinary skill in the art to use polyoxyalkylene-substituted polyorganosiloxane having the claimed HLB in the deinking emulsion of Mollett et al in view of Inada et al and further in view of Richmann et al as a functionally equivalent option to provide more efficient removal of ink particles. It would also have been obvious to use a neutral pH to alleviate the need for caustic or acid storage and addition facilities at the mill.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollett et al in view of Inada et al and further in view of Richmann et al and Cutts et al (6248207).

Mollett et al, Inada et al and Richmann et al do not disclose the use of fatty acids in the process.

Cutts et al discloses a deinking process in which a fatty acid is used as a separation aid during the flotation step to concentrate the hydrophobic solids, such as ink particles and fillers in the upper reject fraction (Abstract; col 2, lines 30-42 and 50-65). The process operates at a pH from 6 to 12 (col 3, lines 56-60).

The art of Mollett et al, Inada et al, Richmann et al, Cutts et al and the instant invention are analogous as pertaining to deinking processes. It would have been obvious to one of ordinary skill in the art to use a fatty acid in the deinking emulsion of Mollett et al in view of Inada et al and further in view of Richmann et al and Cutts et al to aid in the separation and removal of ink particles and fillers.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure [Richmann et al (5200034), Mondin et al (5759983), Mollett et al (5073234)]. They pertain to other deinking processes and cleaning processes that use polyalkoxylated organopolysiloxanes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


DRC


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700